(2) The running loss fuel vapor sampling system shall be a CFV- or PDP-based dilution and measurement system that further dilutes the running loss fuel vapors collected by the vapor vent collection system(s) with ambient air, collects continuously proportional samples of the diluted running loss vapors and dilution air in sample bags, and measures the total dilute flow through the sampling system over each test interval. In practice, the system shall be configured and operated in a manner that is directly analogous to an exhaust emissions constant volume sampling system, except that the input flow to the system is the flow from the running loss vapor vent collection system(s) instead of vehicle exhaust flow. The system shall be configured and operated to meet the following requirements:

(i) The running loss fuel vapor sampling system shall be designed to measure the true mass of fuel vapor emissions collected by the running loss vapor vent collection system from the specified fuel vapor vents. The total volume of the mixture of running loss emissions and dilution air shall be measured and a continuously proportioned sample of volume shall be collected for analysis. Mass emissions shall be determined from the sample concentration and total flow over the test period.

(ii) The PDP-CVS shall consist of a dilution air filter and mixing assembly, heat exchanger, positive-displacement pump, sampling system, and associated valves, pressure and temperature sensors. The PDP-CVS shall conform to the following requirements:

(A) The gas mixture temperature, measured at a point immediately ahead of the positive-displacement pump, shall be within ±10 °F of the designed operating temperature at the start of the test. The gas mixture temperature variation from its value at the start of the test shall be limited to ±10 °F during the entire test. The temperature measuring system shall have an accuracy and precision of ±2 °F.

(B) The pressure gauges shall have an accuracy and precision of ±1.6 inches of water (±0.4 kPa).

(C) The flow capacity of the CVS shall not exceed 350 cfm.

(D) Sample collection bags for dilution air and running loss fuel vapor samples shall be sufficient size so as not to impede sample flow.

(iii) The CFV sample system shall consist of a dilution air filter and mixing assembly, a sampling venturi, a critical flow venturi, a sampling system and assorted valves, and pressure and temperature sensors. The CFV sample system shall conform to the following requirements:

(A) The temperature measuring system shall have an accuracy and precision of ±2 °F and a response time of 0.100 seconds of 62.5 percent of a temperature change (as measured in hot silicone oil).

(B) The pressure measuring system shall have an accuracy and precision of ±1.6 inches of water (0.4 kPa).

(C) The flow capacity of the CVS shall not exceed 350 cfm.

(D) Sample collection bags for dilution air and running loss fuel vapor samples shall be of sufficient size so as not to impede sample flow.

(3) An on-line computer system or strip-chart recorder shall be used to record the following additional parameters during the running loss test sequence:

(i) CFV (if used) inlet temperature and pressure.

(ii) PDP (if used) inlet temperature, pressure, and differential pressure.

[58 FR 16047, Mar. 24, 1993, as amended at 59 FR 48521, Sept. 21, 1994; 60 FR 34358, June 30, 1995; 60 FR 43898, Aug. 23, 1995]

§ 86.1213–08 Fuel specifications.

The test fuels listed in 40 CFR part 1065, subpart H, shall be used for evaporative emission testing.

[70 FR 40437, July 13, 2005]

§ 86.1213–94 Fuel specifications.

Use the fuels specified in subpart N of this part for evaporative emission testing.

[71 FR 51487, Aug. 30, 2006]

§ 86.1214–85 Analytical gases.

(a) *Analyzer gases.* (1) Gases for the hydrocarbon analyzer shall be:

(i) Single blends of propane using air as the diluent; and

(ii) Optionally, for response factor determination, single blends of methanol using air as the diluent.

(2) Fuel for the evaporative emission enclosure FID (or HFID for methanol-fueled vehicles) shall be a blend of 40 ±2 percent hydrogen with the balance being helium. The mixture shall contain less than 1 ppm equivalent carbon response. 98 to 100 percent hydrogen fuel may be used with advance approval by the Administrator.

(3) The allowable zero air impurity concentration shall not exceed 1 ppm equivalent carbon response.

(4) ''Zero grade air'' includes artificial ''air'' consisting of a blend of nitrogen and oxygen with oxygen concentrations between 18 and 21 mole percent.

(5) The use of proportioning and precision blending devices to obtain the required analyzer gas concentrations is allowable provided their use has been approved in advance by the Administrator.

(b) Calibration gases (not including methanol) shall be traceable to within one percent of NIST (formerly NBS) gas standards, or other gas standards which have been approved by the Administrator.

(c) Span gases (not including methanol) shall be accurate to within two percent of true concentration, where true concentration refers to NIST (formerly NBS) gas standards, or other gas standards which have been approved by the Administrator.

(d) Methanol in air gases used for response factor determination shall:

(1) Be traceable to within ±2 percent of NIST (formerly NBS) gas standards, or other gas standards which have been approved by the Administrator; and

(2) Remain within ±2 percent of the labeled concentration. Demonstration of stability shall be based on a quarterly measurement procedure with a precision of ±2 percent (two standard deviations), or other method approved by the Administrator. The measurement procedure may incorporate multiple measurements. If the true concentration of the gas changes by more than two percent, but less than ten percent, the gas may be relabeled with the new concentration.

[48 FR 1456, Jan. 12, 1983, as amended at 60 FR 34359, June 30, 1995]

§ 86.1215–85 EPA heavy-duty vehicle (HDV) urban dynamometer driving schedule.

(a)(1) The EPA dynamometer driving schedule for heavy-duty vehicles is a 1060 second transient speed versus time cycle which is designed to simulate gasoline-fueled HDV operation in urban areas. A second by second listing of this schedule is given in appendix I(d) of this part. Thirty-three percent of the cycle is idle operation, and the average vehicle speed is 18.9 mph (30.4 km/hr). The Administrator will use this driving schedule when conducting evaporative emission tests, as described in § 86.1230–96.

(2) For evaporative emission testing of heavy-duty vehicles a manufacturer may optionally use the dynamometer driving schedule for light-duty vehicles and light-duty trucks specified in appendix I(a) of this part. This driving schedule may not be used for exhaust emissions testing of heavy-duty vehicles. If the manufacturer chooses to use this option, the Administrator will use this driving schedule when conducting evaporative emission tests, as described in § 86.1230–96.

(b) The driver should attempt to follow the target schedule as closely as possible. The speed tolerance at any given time for these schedules, or for a driver's aid chart approved by the Administrator, are as follows:

(1) The upper limit is 4 mph (6.4 km/h) higher than the highest point on the trace within 1 second of the given time.

(2) The lower limit is 4 mph (6.4 km/h) lower than the lowest point on the trace within 1 second of the given time.

(3)(i) Speed variations greater than the tolerances (such as may occur during gear changes or braking spikes) are acceptable, provided they occur for less than 2 seconds on any occasion and are clearly documented as to the time and speed at that point of the driving schedule.

(ii) When conducted to meet the requirements of § 86.1229, up to three additional occurrences of speed variations greater than the tolerance are